

NOTES ON AUSTRALIAN DIPTERA. XXXIV.

By J. R. MALLOCH.

(Communicated by F. H. Taylor.)

(Two Text-figures.)

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The data presented below are required in connection with some rearings of species by Australian workers and are presented to permit of certain specific names being available for publication of the records.

Family AGROMYZIDAE.

HAPLOMYZA IMITANS, n. sp.

♂, ♀. Very similar to *Agromyza pusilla* Meigen in size, colour markings and wing venation, the most striking distinction between them consisting of the lack of the outer cross-vein of the wing, which incidentally constitutes the principal generic character. The less evident forward inflection of the third vein, and the continuance of the costal vein to the apex of the fourth vein, distinguish the genus from *Phytomyza*.

Head yellow, ocellar triangle and occiput black, aristae, the bristles and hairs black. Thorax yellow, distinctly shining but not highly glossy; mesonotum with the lateral margins in front of wings yellow, the disc rather dull black owing to the presence of faint dusting; scutellum yellow, with the lateral margins narrowly black; mesopleura with a black mark on lower anterior angle, sternopleura black except on the upper margin, hypopleura with a black central mark; postnotum black. Abdomen shining black, with narrow yellow apices to the tergites; hypopygium of male, and the sheath of ovipositor and the ovipositor of female shining black. Legs yellow, tibiae and tarsi black, the fore tibiae paler, especially in male. Wings hyaline, veins black. Squamae dirty yellow, fringes fuscous.

Frons almost half the head-width, all the frontal bristles well developed, the orbitals three in number, the upper two pairs reclinate, the anterior pair incurved, and a few very fine short hairs laterad of the bristles; third antennal segment short, rounded at apex, about as wide as height of cheek below middle of eye; arista pubescent. Mesonotum with two strong pairs of postsutural dorso-centrals and a much weaker pair usually visible in front of these close to the suture, the intradorsocentral hairs in four irregular series anteriorly, and some rather well developed hairs in front in line with the dorso-centrals; scutellum with four equally long bristles; mesopleura and sternopleura each with one bristle, propleural distinct. Abdomen as in *Agromyza pusilla*. Legs normal. Fourth vein ending almost exactly in the wing tip, penultimate section of costa a little shorter than ultimate, the latter slightly shorter than section basad of the apex of first vein, inner cross-vein below apex of first, fifth vein complete. Length, 1-1.5 mm.

Type, female, allotype, and three paratypes, mining spinach, Sydney, N.S.W., 20.10.1931; paratypes, four, mining wall-flower, same locality, 26.10.1931, and two mining *Stellaria media*, same locality, 11.10.1931 (K. E. W. Salter). Type and allotype in the Macleay Museum; paratypes in the School of Public Health and Tropical Medicine collection.

Family TACHINIDAE.

Genus FROGGATTIMYIA Townsend.

This genus I have included in my key to the genera of Australian Tachinidae in a previous paper in this series, and I have also given a few notes on the type specimen of the genotype, *hirta* Townsend, in the same paper. I have had several specimens of the genus before me for two or three years, but did not care to deal with them until more material was available. Now I have received specimens from Mr. A. L. Tonnoir that call for an identification, and present below some data dealing with the species involved.

The genus is distinguished from its allies by the presence of propleural and prosternal hairs, the slightly carinate face, and the presence of fine hairs on the entire length of the parafacials.

Key to the Species.

1. Males 2
- Females 6
2. Mesopleura with bright fulvous yellow hairs on entire lower half, a patch of black hairs on central portion of the upper half 3
- Mesopleura entirely black-haired 5
3. Abdomen yellow-dusted on dorsum; parafacial at base of antenna not much more than half as wide as length of eye; genae with numerous black hairs on upper third of the raised part; the dark central part of the dorsum of abdomen not one-third of the width of disc *wentworthi*, n. sp.
- Abdomen grey-dusted on dorsum, the black central part about half as wide as the disc and bluish in tone 4
4. Hairs on parafacials not extending much below level of middle of third antennal segment and quite long, the width of the parafacial not more than two-thirds as great as length of eye; genae black-haired on upper half or more of the raised part *nicholsoni*, n. sp.
- Hairs on parafacials extending to or almost to level of apex of third antennal segment and quite short, the width of the parafacial about four-fifths the length of eye; genae entirely fulvous-yellow haired, or with but one or two darker hairs on upper margin of the raised part *fergusoni*, n. sp.
5. Distance between the vibrissae greater than that from either to eye-margin; third antennal segment and aristae black, the former with a very narrow reddish mark at base on inner side; legs black, tarsi yellowish, fore pair more conspicuously so than the other pairs *tillyardi*, n. sp.
- Distance between the vibrissae not as great as that from either to eye-margin; third antennal segment fulvous-yellow, the outer or upper surface more or less infuscated or browned; legs dark brown, apices of femora, the tibiae, and tarsi paler *hirta* Townsend.
6. Mesopleura with all the hairs black 7
- Mesopleura with fulvous-yellow hairs on lower half 8
7. Distance between the vibrissae distinctly greater than that from either to eye-margin; legs tawny-yellow, apices of tarsi slightly darker; third antennal segment and aristae black, the former almost as wide as parafacial *lasiophthalma*, n. sp.
- Distance between the vibrissae not as great as that of either from eye-margin; legs fuscous or dark brown; third antennal segment brownish-yellow, the outer, or upper, half or more dark brown or fuscous *hirta* Townsend.
8. Ventral surface of hind coxae with numerous fulvous-yellow bristles and hairs, no black bristles present; hind trochanter with one long black bristle; humeral angles not yellow, the lateral margins including the humeri with grey dust

- which is not noticeably different in colour from that of the disc of mesonotum *nicholsoni*, n. sp.
- Ventral surface of hind coxae with a number of strong black bristles and a few fulvous-yellow hairs; hind trochanter with one black bristle; humeral angles yellowish, the lateral margins of the mesonotum with the dust ochreous-yellow and distinct in tone from the grey dust of the disc 9
9. Fourth visible abdominal tergite with the disc covered with quite fine hair-like bristles which become stronger and longer on sides; third antennal segment orange or fulvous-yellow, with a very narrow brown upper margin sp.
- Fourth visible abdominal tergite with numerous quite well developed bristles on disc; third antennal segment with the apical third brown, which colour extends along the upper edge almost to base sp.

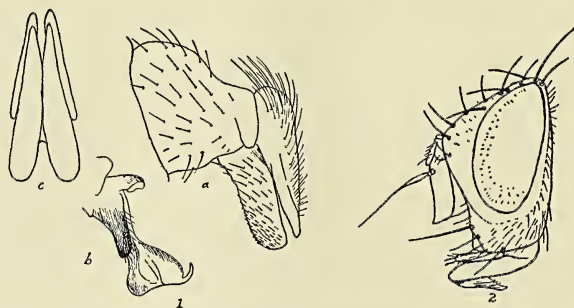
I describe the first species very fully, and it is to be taken that the others differ from it in the particulars listed in the above key and in the notes or abbreviated descriptions given below.

FROGGATTIMYIA WENTWORTHII, n. sp. Text-fig. 1.

♂. Head testaceous-yellow, with yellow dust, interfrontalia reddish-brown, becoming darker above, orbits blackened except in front and with grey dust on the blackened part, not distinctly shining, ocellar triangle coloured as upper orbits, occiput blackened except on the lower third, the dark part yellowish-grey dusted; antennae orange-yellow, dark brown or fuscous on apical third of third segment and with the dark colour extending to base on upper edge; aristae fuscous at apices, fulvous at bases; palpi orange-yellow, with short black hairs at apices and longer pale hairs basad of these; hairs of frons, parafacials, the upper third of raised part of genae, and immediately behind the postocular ciliae black, the others yellow. Thorax black, more yellowish on lower half of humeral angles, postalar region, and the sutures of pleura; scutellum testaceous-yellow; mesonotum with whitish-grey dust, when seen from behind with four linear dark vittae, the submedian pair not continued much behind suture, the sublateral pair continued to about midway between suture and posterior margin; lateral margins behind bases of wings yellowish-dusted; mesonotal hairs, all bristles and some hairs on central upper part of the mesopleura black, the others fulvous; scutellum black-haired except for some yellowish hairs on sides anteriorly. Abdomen testaceous, more red on sides above, and with a central blackish stripe of dorsum which tapers posteriorly and is not more than one-third of the dorsal width at any part, seen from behind with a narrow dark dorsocentral vitta and dark changeable lateral marks on second to fourth tergites, the entire surface very densely coated with yellow or ochreous dust; dorsal hairs and bristles black, those of venter, except on fourth tergite apically, fulvous-yellow. Legs orange to fulvous-yellow; fore coxae with numerous black bristles in front, hind pair with fulvous-yellow bristles and hairs on ventral surface, hind trochanter with one black bristle. Wings greyish hyaline, yellowish at bases, veins brown. Squamae brownish-yellow. Halteres fulvous-yellow.

Frons at vertex a little less than one-fourth of the head-width, widened to anterior margin, the orbits at anterior ocellus about half as wide as interfrontalia, widened anteriorly; inner vertical bristles moderately long, outer pair very fine and short; ocellar bristles proclinate and divergent, very short; each orbit with a series of about 18 incurved inner marginal bristles, the lower one close to level of apex of second antennal segment and diverging outward from the inner margin, the entire surface laterad of the bristles and the parafacials with fine black hairs which extend downward to lower level of eye; parafacial

at level of antennal base about half as wide as length of eye and about equal to 2.5 times the width of third antennal segment; face slightly receding below, vibrissae about the length of second antennal segment below apices of antennae and slightly more than that distance above mouth margin; cheek nearly half as high as eye and about 1.5 times as high as greatest width of parafacial; second segment of arista about as thick as long; palpi slightly thickened at apices. Thorax with the usual 3 + 4 dorsocentrals and 3 + 3 acrostichals, 2 + 1 sternopleurals, and the apical pair of scutellar bristles short and fine. First and second visible tergites of the abdomen each with a pair of apical central bristles, third with a complete series, fourth with surface quite regularly covered with long bristly hairs, none of which is nearly as strong as the apical series on third tergite. Hypopygium small (Text-fig. 1), base shining brown, with numerous fine hairs. Fore tibia with two posterior bristles, the anterodorsal series hardly developed, consisting of very short setulae; mid femur with about four long bristles on basal half of ventral surface; mid tibia with three bristles near middle, one, the longest, on anterodorsal, one on ventral, and one on posterior surface; hind femur with four or five bristles on basal third and one or two near apex of anteroventral surface, and only the basal series on posteroventral; hind



Text-fig. 1.—Hypopygium of *Froggattimyia wentworthi* male: *a*, forceps from the side; *b*, penis from the side; *c*, forceps from behind, denuded.

Text-fig. 2.—*Paropsivora grisea*, head in profile.

tibia with two posteroventral and one or two anteroventral bristles, the anterodorsal surface with a regular series of closely placed short bristles, one near middle longer than the others. Second costal section but little shorter than third, the latter about 1.33 times as long as fourth; bend of fourth vein angular, without an appendage; base of third vein with three or four bristles above and two below. Squamae large, the lower one not bulged up on inner margin, subtransverse on outer and hind margins. Length 12 mm., width at base of abdomen 5.5 mm.

Type, Wentworth Falls, N.S.W., 21 Dec., 1923 (Harrison).

FROGGATTIMYIA FERGUSONI, n. sp.

♂. Very similar in general appearance and coloration to the preceding species, differing essentially as noted in the foregoing key to species.

The upper portion of the parafacials and the entire frontal orbits in the type are rather distinctly shining, the parafacials are much wider than in *wentworthi*, the hairs on the latter are also much shorter, and the ocellars are stronger. It may be noted also that in the colour of the hairs on the palpi and

the bristles of the hypopleura there is a distinction, these being all fulvous in *fergusoni*, but this may not be a constant character in either species. Also the mid tibia in *fergusoni* has two posterior bristles and the outstanding bristle near the middle of the anterodorsal series of the hind tibia is much longer than in *wentworthi*, but here again there may be variation which can only be checked up with a series of specimens. The very wide central blue-black dorsal stripe on the abdomen appears to be a good character and undoubtedly one that will be less subject to variation than the others. In the other characters there is very little that can be utilized for specific distinction, although there are about twice the number of short bristles on the base of the third vein both above and below that there are in *wentworthi*, and the third section of the costa is fully 1.5 times as long as the second. Length 13 mm., width at base of abdomen 6 mm.

Type, Wyalkatchem, W.A., 1 Sept., 1926 (E. W. Ferguson).

Named in memory of the gentleman who induced me to take up the study of Australian Diptera.

FROGGATTIMYIA NICHOLSONI, n. sp.

♂. This species is also very similar to the first one, which obviates the necessity for a full description here.

The colour of the abdomen is similar to that of *fergusoni*, but the dark central stripe is narrower, occupying about one-third of the dorsal width, the dust on the dorsum of abdomen is more checkered or uneven, the parafacials are longer haired, as are also the genae, and the latter are more preponderantly black-haired. The mid tibia of the only leg of that pair intact has three posterior bristles, the hind tibia has three posterodorsal bristles as in *fergusoni*, the hypopleural bristles are mixed black and fulvous, and the bristle on the hind trochanter is yellow, differing thus from the two preceding species. Base of third wing-vein with four or five short bristles above and only one below; costal divisions as in *fergusoni*. Length 13 mm., width at base of abdomen 6 mm.

Type, Sydney, 25 Aug., 1923 (Nicholson).

Named in honour of the collector through whose efforts I have been able to see many interesting species from Australia.

The female described here, I believe, belongs to this species, though the conclusion requires confirmation in the field. My decision is based upon the fact that the base of the third wing-vein has but one bristle on the underside, and there is a second outstanding bristle in the anterodorsal series on the hind tibia, near the base, which is weakly but quite evidently represented in the male also, and not at all visible in the other two species of the group known to me in the male sex.

♀. Differs from the male in having the entire dorsum of the abdomen blue-black, rather densely and slightly changeably whitish-grey dusted, and the scutellum entirely or almost entirely dark. Frons almost one-third of the head width at vertex, outer verticals about half as long as inner pair, ocellars of moderate length, each orbit with the upper inner bristle reclinate, and one or two outer proclinate bristles. Abdomen more tapered than in male, fourth visible tergite with long hair-like bristles on entire dorsum, none of which are nearly as strong as the apical series on third tergite. Length 8-10 mm.

Allotype, and one paratype, Blue Mts., 25 Mar. and 15 Jan., 1922 (Health Dept.).

FROGGATTIMYIA HIRTA Townsend.

Canad. Ent., 48, 1916, 155; Malloch, *Proc. Linn. Soc. N.S.W.*, 54, pt. 4, 1929, 323.

♂, ♀. A much darker species than any of the three just dealt with, the pleural hairs, except some on the extreme lower part of the humeral callus and those on the centre of the propleura, black. The legs are darker also, though in the material before me the colours are very obscure because the specimens have been killed before attaining absolute maturity. The type male in the collection of the United States National Museum unfortunately has lost all the legs except the hind femur on one side, and this is dark brown to beyond the middle and fulvous at apex. Because of immaturity and the presence of dirt the specimens of both sexes before me have the legs apparently dark brown, though held against the light the tibiae are evidently much paler. The dark-haired parafacials and genae, with the shorter hairs on the former and the greater width of the parafacials in profile, extensively reddish third antennal segment, and less extensive red marks on the sides of the abdomen in the male, distinguish the species from the next one. Length 8-9 mm.

Townsend in his original record stated that he had a male and a female from Mittagong, N.S.W., reared from Sawfly larvae. The male I accept as the type, the female I believe is not conspecific and is dealt with below. I place here two males and one female from Roma, Qld. (Department of Agriculture, Brisbane, Q.), reared from larvae of *Pterygophorus analis* Costa, 12.2.1915 (H. Tryon). This species is also a Sawfly, but there is no means of determining whether the host was the same in both cases.

FROGGATTIMYIA TILLYARDI, n. sp.

♂. Differs from *hirta*, as indicated in the foregoing key to species. It may be noted also that the abdomen is more tapered posteriorly in the male and is more extensively red on the sides, the second and third segments being broadly so. The black legs with their pale tarsi, especially the fore tarsi, are very distinctive. The widely spaced vibrissae are quite characteristic, and in profile these are almost in line with the lower level of the eye, which is not the case in any other male before me. The abdomen in the male has a more marked black dorsocentral vitta than in *hirta*, but none of the tergites has a dark hind margin. Eyes with a few very short sparse hairs. Length 8 mm., width at base of abdomen 3 mm.

Type, Blundell's, F.C.T., December, 1931, parasite of *Paropsis reticulata* Marsh. (W. K. Hughes).

FROGGATTIMYIA LASIOPHTHALMA, n. sp.

♀. This species rather closely resembles the preceding one and may possibly be but the female of it, though there are several striking distinctions in both structure and coloration that would appear to justify me in my present course of considering them distinct.

The general coloration is very similar, but the abdomen is nowhere red and has the dusting quite dense and somewhat checkered, the legs are tawny yellow with the coxae black and the apices of tarsi infuscated, the head is brownish-yellow, with only the occiput except the lower third blackened, and the third antennal segment is entirely black.

The eyes have more evident, longer, and denser hairs than in the above male, the third antennal segment is comparatively longer and wider, and the

parafacials are a little wider. None of these characters is more pronounced in females than in males as a general rule in this group as far as my experience goes. In both, the vibrissae are about equally widely placed, and the gena is about one-third as high as the eye. Length 7-8 mm.

Type and one paratype, Black Mt., F.C.T., December, 1931, parasite of larvae of *Gonipterus scutellaris* Gyll. (W. K. Hughes).

A peculiarity of the female consists of the heavily chitinized pointed subtriangular piercer which is curved forward below the venter.

FROGGATTIMYIA SP.

♀. This is the specimen which Townsend included as the female of *hirta* in his original description of that species, but I cannot agree with that decision because of the colour of the hairs of the mesopleura, which are fulvous except on the upper central portion. The legs are entirely fulvous-yellow, including the coxae and tarsi, and the third antennal segment has a very fine border of brown on its upper or outer side. The abdomen has a red mark on each side which covers the apex of first, all of second, and the base of third tergite, but does not extend far inward. The hairs on lower part of the parafacials and all of those on the genae are yellow. The abdominal bristles are much weaker than usual, even those in centre of the apex of third tergite being short and hair-like. Length 8.5 mm.

Locality, Sydney, N.S.W., labelled parasitic larva (W. W. Froggatt).

I prefer to allow this specimen to stand without a name pending the discovery of the male.

FROGGATTIMYIA SP.

♀. Similar to the preceding species but with a greater proportion of the abdomen red on sides, and the third antennal segment more largely dark brown. The abdomen has much stronger bristles, the series on the apex of third tergite and several of those on the disc of fourth being quite strong. Length 7-8 mm.

Locality, Narromine, Maroondah, N.S.W., no collector's name or date.

PAROPSIVORA, n. gen.

Generic characters.—Belongs to the group in which the centre of the propleura is haired. In addition to this character the prosternum has setulae on the sides, the parafacials are bare, the frontal bristles do not descend below the level of the apex of second antennal segment, the third antennal segment is about twice as long as the second and has the upper apex distinctly though not conspicuously pointed, the arista is bare, with the second segment not elongated, the palpi are normal, and the abdomen has no discal bristles. For other characters see description of genotype below.

PAROPSIVORA GRISEA, n. sp.

♀. Black, densely grey-dusted. Frontal stripe fuscous, darker than the orbits; antennae and aristae black; palpi testaceous-yellow; inner occipital hairs and the beard yellow. Mesonotum with four dark grey vittae which do not extend more than midway from the suture to hind margin. Abdomen with the dust checkered much as in typical species of the genus *Sarcophaga*, changeable according to the angle from which it is viewed. Legs black. Wings hyaline, veins brown. Calyptrae white. Halteres yellow.

Eyes with some very short sparse pale hairs; frons at vertex nearly one-fourth of the head-width, interfrontalia in front of anterior ocellus not as wide

as either orbit at that point, almost uniformly wide to anterior extremity, the orbits widened and quite strongly bristled, the inner margin with the upper two bristles recurved, the anterior four or five incurved, the anterior two divergent, proclinate outer bristles strong, two pairs; ocellars of moderate length, proclinate and divergent; outer verticals shorter than the inner pair; face shallowly and evenly concave; profile as in Text-figure 2. Dorsocentral bristles 3 + 4, acrostichals 3 + 3, the posterior presutural pair close to suture; presutural sublateral area with five bristles; sternopleurals three, two strong above and one very fine short one below midway between the others. Abdomen ovate, first two visible tergites each with a pair of central apical bristles, third with an apical transverse series, fourth with a number of strong bristles, forming two rather irregular transverse series, one median and the other apical. Fore tarsus with the apical four segments slightly widened; fore tibia with a posterior bristle, and the anterodorsal bristles short and present on more than the basal half; mid tibia with a strong ventral bristle, the anterodorsal surface with one long and one short bristle; hind tibia with a series of irregular bristles on anterodorsal and posterodorsal surfaces, the one near middle longest, beyond which the series stops. Venation as in *Phorocera*, first posterior cell open, ending before wing tip, outer cross-vein much closer to bend of fourth than to inner cross-vein, ultimate section of fifth vein subequal to outer cross-vein; third vein with two or three bristles at base above and below. Lower calypter as in preceding genus. Length 5.5 mm.

Type, Blundell's, F.C.T., December, 1931, parasite of larvae of *Paropsis reticulata* Marsh. (W. K. Hughes).

Type specimen slightly crushed, but the postscutellum apparently quite large.
